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DEPARTMENTAL CIRCULAR

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No. 7

IMPORTANT RULINGS.

COMPTROLLER'S DECISIONS.

[Contribution from Office of the Secretary.]

In recent correspondence with officers of this department the following principles have been enunciated by the Comptroller of the Treasury:

Material was delivered and accepted in excess of the quantity, but of the same kind and price, specified in a contract, consisting of a written proposal and acceptance, which contained no provision for furnishing any material in excess of the specified quantity. An official, who was not a party to the contract, stated that the omission was through clerical error; that the prospective bidders knew that the additional material would be required; that the price was made on that basis, and that it was reasonable. No exigency was shown in procuring the material. The question is not whether the price is excessive, but whether the material was furnished under a competitive contract, secured by advertisement, as required by section 3709 of the Revised Statutes. The statement of the official is effective only as his view of the understanding of the contract by the bidders and the department. Either the contract does not sufficiently express the intent of the parties or it was not entered into in the manner required by section 3709 of the Revised Statutes, and claimant's right to payment is that arising out of a contract implied from acceptance and use for the reasonable value of the material. The evidence presented is insufficient and the disbursing officer is not authorized to make payment. All papers should be forwarded to the Auditor for the State and Other Departments with evidence as to prices bid by others, and the fair value of the material furnished. (Dec. dated Oct. 5, 1915.)

That when a vehicle or boat is rented by the Government for a month or year or for any definite or indefinite period of time and is *continuously* operated and controlled by Government agencies, as distinguished from a hiring for a single trip, it is for the time being a Government vehicle, and that therefore, under the act of July 16, 1914 (38 Stat., 1115), the cost of the rental of motor-propelled and horse-drawn passenger-carrying vehicles and motor boats hired for said periods must be charged against an appropriation authorizing the purchase

of same, and the cost of their repair, maintenance, and operation against an appropriation for that purpose; that this rule, however, will not be enforced against the Department of Agriculture during the current fiscal year (1916), and the cost of hire of passenger-carrying vehicles during said year may be charged to the appropriation for maintenance, repair, and operation, as the estimates for the fiscal year 1916 were made to Congress with this end in view. (Dec. dated Oct. 15, 1915.)

MEMORANDUM NO. 149.

Reference to Commercial Institutions or Private Enterprises in Publications of the Department.

It is contrary to the policy of this department to refer by name in any of its publications to commercial institutions or private enterprises. The purpose of this policy is to avoid the use of the department as a medium for advertising. To this end and in order to avoid any complications which later might arise, when any branch of the department enters into cooperation with such an institution or enterprise it should be explicitly stated at the time the work is commenced that no reference will be made by name to the cooperating institution or enterprise, or to any individual connected therewith, in anything published by the department.

D. F. HOUSTON,
Secretary.

OCTOBER 7, 1915.

MEMORANDUM NO. 150.

Amendment to Paragraph 33 of the Administrative Regulations.

Paragraph 33 of the Administrative Regulations is hereby amended to read as follows:

"33. Reports of employment of temporary labor.—Officials will make a monthly report of the employment of temporary assistants and labor outside of the District of Columbia, which report must include a statement of the specific kind of labor or duties performed in every case by those so employed. Each monthly report will include all temporary assistants in classified competitive positions employed during the month under letters of

authorization issued to officials in charge of field work. Temporary assistants in positions excepted from examination (forest guards, field assistants, cooks, rodmen, chainmen, etc.) and temporary labor in unclassified positions, employed under letters of authorization issued to officials in charge of field work, may be reported monthly, semiannually (Dec. 31 and June 30), or annually (June 30), giving a consolidated statement for each employee covering all employment within the period of the report."

D. F. HOUSTON,
Secretary.

OCTOBER 19, 1915.

MEMORANDUM NO. 151.

Regarding Motion Pictures.

In order that the value of the motion-picture films already taken by the department may be thoroughly tested and that the public may be given an opportunity to see and profit by these films to the widest extent not inconsistent with the present experimental nature of the work, the several bureaus, divisions, and independent offices are requested to cooperate fully with the Committee on Motion Picture Activities and with the States Relations Service in carrying out the projects included in the following report, which is approved:

"The Committee on Motion Picture Activities at its meeting on September 15 considered carefully the question of extending the public showing of the motion-picture films already completed by the department. It recommends that the films be shown more widely (1) in order to test out more thoroughly their educational value and (2) to make wider practical use of the films thus far developed.

"The committee is of the opinion that at present only such extension should be contemplated as can be carried out with funds now available to the department. It is believed wise (1) to continue the motion-picture work on its present experimental basis, (2) to continue the practice of requiring bureaus wishing films taken to defray the cost of the films, and (3) that unless agricultural colleges are allowed to purchase copies of films the present practice of allowing films to be shown only by Government employees be continued.

"To carry out this general plan the committee recommends the following projects.

"1. That each bureau be requested to make the widest possible use of the positive copies of films now owned by it.

"2. That the bureaus be granted permission, with the approval of the committee and the Secretary, to make additional positive copies of existing films when such extra copies are needed in carrying out special campaigns of education, and to purchase necessary projectors.

"3. That the bureaus cooperate with the States Relations Service by indicating to that service on the first of each month the dates on which any positive copies of films owned by that bureau could be made available for showing through county or other demonstration agents and by indicating in what territories the bureau would like to have the films exhibited in furtherance of educational objects.

"4. That, in order to obtain complete data as to showing and educational effect of the films, each bureau be requested to report at least once a month to the chairman of the motion-picture committee the use made and the results obtained through the showing of its motion-picture films. This report should include the title of the film, the place of showing, the date, information as to the effect on size of audience, attitude of spectators, and educational or promotional effects noted from the employment of the film. From these reports the chairman of the committee will cause to be made a map showing the location and date of showing of each film, so that duplication of showing by the department or cooperating agencies may be avoided.

"5. The committee concurs in the suggestion of the States Relations Service, through its representatives on the committee, that the service arrange, through its demonstration and county agents, an intensive test of selected programs of four or more films in five different States. For this test showing, the several bureaus will be asked to cooperate with the service by lending copies of their films for use in its program. The service will collect detailed reports of the test and also supply the department with any suggestions for improvement of existing films, or for the making of new subjects, which may be indicated in these tests.

"Consideration of further suggestions, (a) that the States Relations Service equip itself with selected programs of the department's films for wide and regular use through demonstration and county agents, (b) that arrangements be made whereby State agricultural colleges can purchase copies of the department's films, and (c) that the department's films be made public through commercial motion-picture release companies, was deferred pending the results of the State tests to be conducted by the States Relations Service."

D. F. HOUSTON, *Secretary*.

OCTOBER 28, 1915.

THE DEPARTMENTAL CIRCULAR is issued as a convenient means of intercommunication of official information among the personnel of the Department of Agriculture. Its circulation, therefore, will be limited to those having official connection with the department. Its editorial policy will be determined wholly by the specific class of readers for whom it is published and, therefore, may depart somewhat from the editorial policy governing material issued for the public. While the material to be published will by no means be confidential, the department can not extend the circulation of this publication beyond its own employees and official collaborators.

OPINION OF SOLICITOR.

On October 7, 1915, the Solicitor rendered an opinion that a statement accompanying a subvoucher for the pay of a laborer employed by the department in gathering, as directed, certain specimens in a cereal-disease nursery in St. Paul, to the effect that it was essential that the work should be finished during the time his superior was in the city, was not sufficient to show an extraordinary emergency, within the exception of the Federal statute limiting the hours of labor of laborers and mechanics, and that the laborer could not be paid any compensation for the work so performed by him in excess of eight hours in any day.

CHEMISTRY NOTES.

(Contribution from Bureau of Chemistry.)

Tamarind sirup.—A sirup made from the pulp of tamarinds with added sugar is prepared in considerable quantities in this country. Diluted with water it makes a refreshing drink and is used as a summer beverage. The sirup is consumed mainly by immigrants from southern Europe, by whom it is highly esteemed. It is very commonly adulterated.

W. C. Taber, in the *Journal of Industrial and Engineering Chemistry* for July, 1915, has reported the results of a study of the chemical composition of genuine tamarind sirups, the object of the investigation being to secure chemical data for use in the detection of adulteration in commercial samples. Previous analyses of tamarind products are reviewed and results of analyses are given, which were obtained by the author in the chemical examination of six samples of known composition.

Estimation of raffinose.—For determining the amount of raffinose in substances containing other sugars, the only methods

available up to the present time have been inaccurate and uncertain, or applicable only in special cases. A new method for estimating this sugar has been developed by C. S. Hudson and T. S. Harding, and is described in the *Journal of the American Chemical Society* for August, 1915. Two enzymes, invertase and melibiase, prepared respectively, from top yeast and bottom yeast, are used to hydrolyze raffinose in two successive stages. The change taking place in the second stage is used as a measure of the raffinose present in the original mixture. By means of this procedure the faults inherent in older methods are avoided and a means of estimating raffinose results which is suitable for wide application.

The article mentioned outlines the principles of methods previously used, as well as of the method proposed. The latter is described in detail and is accompanied by tables of results obtained by its use in the analysis of mixtures of various sugars.

Wild mustard seed.—The seeds of two plants, charlock (*Brassica arvensis*) and brown mustard (*Brassica juncea*), mixed in varying proportions, are known in commerce as "Wild mustard seed." This product is separated in enormous quantities from grain and flaxseed in the Northwest, where the plants producing it grow as weeds in cultivated fields. The seed as found in commerce has been the subject of an investigation by A. L. Winton and J. H. Bornmann, who report their results in the *Journal of Industrial and Engineering Chemistry* for August, 1915. The paper deals with the sources of the seed, the means of separating it from grain and other seeds, actual and proposed uses for the product, and analyses of commercial samples. In the analysis of samples the percentages of the various seeds present were calculated, and the amount of volatile oil was determined. The conclusion is drawn that the volatile-oil strength of a sample can be computed from its botanical composition.

Experiments in the destruction of fly larvæ.—Extensive experiments, for the purpose of devising improved methods for the destruction of the larvæ of the house fly in horse manure, without injuring the fertilizing value of the manure, have been continued by F. C. Cook, of the Bureau of Chemistry, R. H. Hutchinson, of the Bureau of Entomology, and F. M. Scales, of the Bureau of Plant Industry. The experiments are described and results are reported in *Department Bulletin No. 245*. The larvicidal efficiency of nineteen substances was tested. Several substances were found to be effective for the destruction of larvæ, but only one substance, powdered hellebore, was thought to be cheap enough for general use and free from practical disadvantages. The comparative advantages of borax and hellebore are discussed.

PLANT INDUSTRY REVIEWS.

(Contribution from Bureau of Plant Industry.)

Bur clover.—Farmers' Bulletin No. 693, entitled "Bur Clover," by Charles V. Piper and Roland McKee, was issued on October 15, and is intended for general distribution in the cotton regions and on the Pacific coast. There is a growing appreciation of the value of bur clover, because it so readily maintains itself with little or no reseeding and because each year it can be depended upon to add humus and nitrogen to the soil without sacrificing the regular summer crop of the farm. For the South especially, bur clover is the cheapest legume that serves as a winter cover crop, thus preventing the washing of the soil.

The native persimmon.—Those who have considered the food value of the fruit of the persimmon, from the earliest chroniclers to recent writers, have predicted that the tree would eventually be accorded a place in our gardens and orchards. Farmer's Bulletin No. 685, relating to the production, preparation, and uses of this native American fruit, by W. F. Fletcher, issued on October 12, will be of general interest. There are several factors which are responsible for the slow progress of persimmon development in this country. One reason for the neglect of this fruit seems to be the erroneous yet oft-repeated statement that persimmons are unfit to eat until they have either been touched by frost or frozen. Another factor is the difficulty encountered in propagating and transplanting it.

The zone of greatest productivity and adaptability, wherein appear by far the largest number of promising types, extends from Maryland, Virginia, and the Carolinas westward through Missouri and Arkansas. The persimmon thrives equally well on the sands of the Coastal Plain, the shales of the Allegheny Mountains, the muck of the river-bottom lands, and the chert of the Ozarks.

The field pea.—In connection with the extension of the growth of the field pea as forage, Farmers' Bulletin No. 690, by H. N. Vinall, issued on October 8, will be of interest to farmers and dairymen, especially in the Southern States, where this crop deserves wider use as a winter legume. The value of field peas in rotations receives consideration, as does also their use for grain, hay, silage, and as green manure.

Varieties of hard spring wheat.—A paper dealing with the varieties of hard spring wheat, both common and durum, by Carleton R. Ball and J. Allen Clark, was issued on October 7 as Farmers' Bulletin 680. What these varieties are, how and when they came to be, and how to tell them apart are stated. The particular sections

and districts to which they are suited also are shown.

Uses of sorghum grain.—The grain sorghums are made up of several different groups of sorghums which produce good yields of feeding grain. Among these are kafir, milo, durra, and kaoliang. The kafirs have a comparatively high value aside from the yield of grain, because of their semijuicy stems and large and abundant leaves.

Farmers' Bulletin 686, by Carleton R. Ball and Benton E. Rothgeb, issued on September 22, is suitable for distribution in the southern part of the Great Plains area, where these crops have attracted attention because they have been found to be very drought resistant. In favorable seasons they make profitable yields, and in dry seasons they are much better than corn. The grain sorghums, therefore, have come to be extensively used in place of corn for grain production, especially in the drier districts, and the acreage devoted to these crops has been growing rapidly in recent years.

Scottsbluff Experiment Farm.—An account of the experiments conducted in 1914 at the Scottsbluff Experiment Farm in Nebraska, which included crop rotations, methods of irrigation, the testing of various crops and of various methods of disposing of alfalfa and other crops through the feeding of live stock, and the testing of shade trees and small fruits, vegetables, and ornamental shrubs, was issued on October 9 as a circular of the Office of Western Irrigation Agriculture, by Farm Superintendent Fritz Knorr. In addition to the above-mentioned work, which is carried on under irrigation, about 30 acres of the land on the farm are used for dry-land experiments, conducted by the Office of Dry-Land Agriculture. The Scottsbluff Experiment Farm is located on the North Platte Reclamation Project, 6 miles east of Mitchell and about 8 miles northwest of Scottsbluff, Nebr.

Dates of Egypt and the Sudan.—Date culture in the Nile Valley extends with little interruption from the Mediterranean coast to Khartum, a distance of about 1,100 miles, the longest continuous north-and-south stretch of date culture in the world. The territory has a range in mean annual temperature of more than 15 degrees and a range in the percentage of mean relative humidity varying from 74 at Port Said to only 24 per cent in Dongola Province in the Sudan. A paper describing the date industry of this region, by S. C. Mason, as a result of travel and investigations made in 1913, was issued on September 28 as a bulletin of the departmental series (No. 271). For convenience in study, the region has been divided into three zones. The records of 12 weather stations of Egypt and the Sudan have been compiled and arranged in a table, showing their bearing on date requirements.

Alkaloids in belladonna.—*Atropa belladonna* is an important mydriatic drug, the supply of which has been of such inferior quality in recent years that the Office of Drug-Plant and Poisonous-Plant Investigations has been conducting experiments for some time with special reference to increasing the alkaloidal content of the plant. The results of these studies conducted during the seasons of 1911 to 1914, inclusive, are reported by A. F. Sievers in a bulletin of the departmental series (No. 306) issued on October 15. First-generation plants from seed of cross-pollinated selected individuals displayed the characteristic of the maternal parent with regard to alkaloid productivity. Second-generation plants from cross-pollination displayed the relative alkaloid-producing tendencies evident in the original parent plant and the generation preceding. Plants were grown from cuttings, and at two stages of their growth these plants showed a marked tendency to display the same characteristic regarding alkaloid production as the plants from which they were propagated and the original parents of those plants.

Root disease of sugar cane and banana.—An account of *Tylenchus similis*, a species of nematode, to the presence of which a disease of the roots of bananas in Fiji and of sugar cane in Hawaii has been traced, is given by N. A. Cobb in the Journal of Agricultural Research for September 15. The infestation by this nematode of plants differing so widely as those named and its presence in Jamaica suggest the possibility of its introduction through Porto Rico into the Southern States, where it would probably find suitable host plants in the sugar cane and might be expected to attack other plants.

Disease of sugar beets.—Histological studies recently conducted upon seedling sugar beets infected with *Phoma betae* have shown the fungus fruiting on the surface of young plants that were scarcely past the cotyledon stage. They have also revealed the organism living without serious injury to the host within the deeper cells of plants that had thrown off the attack and which it could safely be predicted would show no further sign of infection during the growing season if reasonably good cultural conditions were maintained. A paper by H. A. Edson, dealing with this physiological relation, which is of considerable scientific and practical importance, appears in the Journal of Agricultural Research for October 4.

Perennial mycelium in Peronosporaceae.—That there are at least several species of *Peronosporaceae* belonging to four genera that may be perennial in the tissues of their hosts, the mycelium passing the winter either in the aerial or the underground organs of winter annuals, biennials, or perennials, is a summarization made by

I. E. Melhus as a result of investigations the details of which are given in the Journal of Agricultural Research for October 11. An important practical bearing of this study may be inferred from the fact that *Phytophthora infestans*, the causal fungus of potato blight, belongs to this family, and its mycelium may grow from the tubers up to the stem to the surface of the soil, sporulate, cause foliage infection, and bring about an epidemic of the disease.

Hibernation of *Phytophthora infestans*.—Data obtained in the laboratory and in the field supporting the perennial-mycelium theory as regards the causal fungus of late blight of the potato are recorded in a paper by I. E. Melhus printed in the Journal of Agricultural Research for October 11. The production of resting organs is not necessary for the hibernation of the fungus. The mycelium is quite sufficient. There are many species closely related to *Phytophthora infestans* that produce few resting spores on certain of their hosts. These may perpetuate themselves from one season to another by means of the living mycelium in the perennial parts of the host plant in much the same way as already described for *Phytophthora infestans*.

Automatic transpiration scale.—An extended study of the transpiration rate of plants practically necessitates the use of an automatic balance of some type. A paper by Lyman J. Briggs and H. L. Shantz, published in the Journal of Agricultural Research for October 18, contains a review of the various forms of transpiration balances heretofore employed, together with a description of a new automatic transpiration scale of large capacity, so designed that the plants may be freely exposed to the weather. Four of these scales have been in continuous use during the past four summers at Akron, Colo.

Parasitism of Comandra plants.—One of the most injurious of the stem or blister rusts occurring on pines is *Peridermium pyri-forme*, which attacks certain species of pines in the Western, Northern, and Northwestern States. This heteroecious rust depends for its existence upon its alternate (summer) stage, which occurs on species of Comandra. The problem of the eradication of this important rust being so intimately associated with plants of species of Comandra led to an investigation of their manner of growth and means of propagation. The results of these experiments, given in a paper by George G. Hedgcock, published in the Journal of Agricultural Research for October 18, indicate a greater degree of parasitism in Comandra plants than has hitherto been suspected and will render more obvious the desirability of their destruction in the vicinity of forest-tree nurseries.

Peppermint and spearmint.—The culture of peppermint and spearmint, mainly

for their essential oils, is a well-established industry in this country, tending to become centralized in a few States where soil conditions especially favor the development of the plants, but it appears capable of considerable development in other localities should greater commercial need arise.

A Farmers' Bulletin (No. 694), by Walter Van Fleet, of interest to those engaged in or contemplating mint culture and applicable to all portions of the country where mint is grown, was issued on October 19.

For many years the United States has been the greatest producer of peppermint and spearmint oils and from present indications bids fair to maintain the lead. According to the best estimates obtainable, the total area of mint in 1914 in Michigan, Indiana, and New York appeared to be just under 25,000 acres, of which nearly 5,000 acres were spearmint.

WEATHER REVIEW NOTES.

(Contribution from the Weather Bureau.)

Distribution of thunderstorms in the United States.—In the Monthly Weather Review for July, 1915, W. H. Alexander, of the Weather Bureau, presents a paper on the distribution of thunderstorms in the United States. The article is illustrated by 13 lithographic charts showing the number of thunderstorms for each of the 12 months for the 10-year period 1904-1913; the thirteenth chart gives the total number recorded during the entire 10-year period.

Besides the charts the author has provided an elaborate set of tables, wherein are recorded the accumulated number of thunderstorms for each regular Weather Bureau station for each month from the establishment of the station to the end of the year 1903; from January, 1904, to December, 1913, the number of thunderstorms is given month by month for each station, thus furnishing the student of thunderstorm phenomena much valuable data.

The charts show two centers of great thunderstorm activity in the United States, one over Florida, a very humid region, and the other over northern New Mexico, a semiarid region, the total number of thunderstorms in 10 years being 944 for Florida and 710 for northern New Mexico.

Phenological observations in Ohio; calendar of trees of eastern United States.—Supplement No. 2 to the Monthly Weather Review, recently issued, contains a record of the time of leafing, blooming, and fruiting of numerous native and cultivated plants growing in the vicinity of Wauseon, Ohio, kept for many years by Thomas Mikesell. Mr. Mikesell's observations extend from 1872 to 1912, and simultaneous meteorological records are added to those of a phenological nature.

Under the same cover as the above is a calendar of the common trees of the eastern United States, prepared by George Lamb, of the Forest Service. This calendar, with its graphical tables, presents at a glance the average vegetative stage of almost any kind of tree at any month in the year.

Publication of ocean meteorological reports.—In order that the large amount of information regarding ocean meteorology, gathered by the Weather Bureau through its corps of marine observers, may be made available, action is being taken to publish in the Monthly Weather Review condensed monthly summaries of the more important features of the weather over the several oceans. Especial attention will be given for the present to the North Atlantic Ocean, for which charts will be prepared showing by months the average barometric pressure, the average temperature, the prevailing direction of the winds and the course of the more important storms that may have occurred during the month.

As complete reports from the entire North Atlantic are frequently not received until a considerable time after the close of the month, it is not possible to print data for the same period as that embraced in the Review. The data, therefore, will appear one year late.

WEATHER BUREAU WORK IN ALASKA.

Since the establishment of wireless communication between its Pacific coast stations and points in Alaska, the Weather Bureau, in cooperation with the Naval Radio Service, has extended the field of meteorological observations into portions of that Territory not previously reached by the telegraph and cable lines. As a result, daily weather reports are now being received from eight different points in the Territory or the adjacent islands. These have proved of much value to the forecasting officials of the Weather Bureau, and further extensions into other portions of the Territory will be accomplished as promptly as facilities for transmitting the reports become available.

With the construction and operation of Government-owned railroads, and the prospective rapid development of the mining, agricultural, and other interests of the Territory, information regarding its more important climatic features will be widely sought. To meet this demand action is now being taken by the bureau to expand the work in the Territory wherever possible. The supervision of this work has recently been assigned to the Weather Bureau official in charge of the Seattle (Wash.) station, who will print and distribute the current weather data collected from the different portions of the Territory.

At the end of the present year it is proposed to prepare and print an annual summary of the principal climatological data for Alaska, similar to those issued for many years for the several States. In addition there will shortly be printed, in convenient form for distribution, the accumulated weather data that has been gathered from many points in the Territory.

STATION PUBLICATIONS.

(Contribution from States Relations Service.)

The station publications noted in this list are not distributed by the Department of Agriculture, but can usually be obtained by department workers, as far as the supply will permit, by applying to the stations issuing them. An address list of the stations will be furnished upon request by the States Relations Service. Copies of these publications can be consulted in the library of that service, and also, ordinarily, can be borrowed from the department library.

CROPPING SYSTEMS AND SOIL STUDIES.

- Alfalfa in Delaware. By A. E. Grantham. (Delaware Station Bulletin 110, pp. 42, figs. 14.)
- The Feeding of Cotton, II. By H. C. White. (Georgia Station Bulletin 114, pp. 260-268.)
- Winter Crops: Wheat, Oats, Rye, Barley, Speltz, Vetch, Burr Clover, Crimson Clover. By C. K. McClelland. (Georgia Station Bulletin 117, pp. 331-352, figs. 5.)
- Alfalfa: Seeding, Yields, Harvesting, and Curing. By C. K. McClelland. (Georgia Station Circular 72, pp. 3, figs. 2.)
- Rape for Fall Pigs. By C. K. McClelland and P. Van Ewing. (Georgia Station Circular 73, pp. 3, fig. 1.)
- Pike County Soils. By C. G. Hopkins et al. (Illinois Station Soil Report 11, pp. 48, pls. 3, figs. 4.)
- The Soils of Kentucky. By S. D. Averitt. (Kentucky Station Bulletin 193, pp. 129-164, pl. 1.)
- Soils of Graves County. By S. C. Jones. (Kentucky Station Bulletin 194, pp. 169-197, pl. 1.)
- Green Manuring and Cover Crops. By W. P. Brooks. (Massachusetts Station Circular 55, revision of No. 37, pp. 5.)
- Humidity, Soil, and Fertility Studies with Roses. By M. A. Blako. (New Jersey Stations Bulletin 277, pp. 3-55, figs. 7.)
- The Composition of the Soils of the Texas Panhandle. By G. S. Fraps. (Texas Station Bulletin 173, pp. 3-25.)
- The Effect of Organic Compounds in Pot Experiments. By G. S. Fraps. (Texas Station Bulletin 174, pp. 3-13.)
- Time and Method of Tillage on the Yield and Comparative Cost of Production of Wheat in the Palouse Region of Eastern Washington. By C. C. Thom and H. F. Holtz. (Washington Station Bulletin 123, pp. 6.)

ANIMAL INDUSTRY.

- The Silo in California Agriculture. By F. W. Woll. (California Station Circular 138, pp. 23, figs. 7.)
- The Associative Digestibility of Corn Silage, Cottonseed Meal, and Starch in Steer Rations. By P. Van Ewing and C. A. Wells. (Georgia Station Bulletin 115, pp. 271-296, figs. 7.)
- Growing and Fattening Hogs in Montana. By P. N. Flint and R. F. Miller. (Montana Station Circular 50, pp. 44-71, figs. 2.)
- Distribution and Digestibility of the Pentosans of Feeds. By G. S. Fraps. (Texas Station Bulletin 175, pp. 3-24.)
- Cottonseed Cake v. Cold Pressed Cottonseed Cake for Beef Cows; Mixed Grains v. Cottonseed Cake for Growing Beef Cattle. By A. D. Faville. (Wyoming Station Bulletin 106, pp. 3-11.)

DAIRYING.

- Official Tests of Dairy Cows. By F. W. Woll and Cora J. Hill. (California Station Circular 135, pp. 10, figs. 4.)
- Rules Relative to Testing Dairy Cows. (Massachusetts Station Circular 57, revision of No. 28, pp. 4.)
- Germ Content of Stable Air and Its Effect upon the Germ Content of Milk: I. Methods of Bacterial Analysis of Air; II. Stable Air as a Source of Bacteria in Milk. By G. L. A. Ruehle and W. L. Kulp. (New York State Station Bulletin 409, pp. 419-474, figs. 4.)
- Methods of Making Some of the Soft Cheeses. By W. W. Fisk. (New York Cornell Station Circular 30, pp. 41-62, figs. 7.)

FRUITS AND VEGETABLES.

- Pecans: Varieties, Influences of Climate, Soil, and Stock on Scion. By H. P. Stuckey. (Georgia Station Bulletin 116, pp. 299-328, figs. 11.)

The Fertilizer Problem from the Vegetable Grower's Standpoint. By C. E. Durst. (Illinois Station Circular 182, pp. 28, figs. 6.)

Packing and Shipping Peaches in Georgia Carriers. By M. A. Blake and C. H. Connors. (New Jersey Stations Bulletin 284, pp. 3-48, figs. 27.)

Inheritance of Certain Characters of Grapes. By U. P. Hedrick and R. D. Anthony. (New York State Station Technical Bulletin 45, pp. 3-19.)

Economics of Apple Orchard. By C. I. Lewis and H. A. Vickers. (Oregon Station Bulletin 132, pp. 3-104, figs. 14.)

INSECTS.

Mealy Bugs of Citrus Trees. By C. P. Clausen. (California Station Bulletin 258, pp. 19-48, figs. 8.)

The Generation of Hydrocyanic Acid Gas in Fumigation by Portable Machines. By H. D. Young. (California Station Circular 139, pp. 8, figs. 5.)

The San José Scale. By P. A. Glenn. (Illinois Station Circular 183, pp. 3-24, pls. 4, figs. 2.)

Woolly Aphid of Elm and Juneberry. By Edith M. Patch. (Maine Station Bulletin 241, pp. 197-204, figs. 2.)

The Mosquitoes of New Jersey and Their Control. By T. J. Headlee. (New Jersey Stations Bulletin 276, pp. 3-133, figs. 94.)

PLANT AND ANIMAL DISEASES.

The Diseases of the Sweet Potato and Their Control. By J. J. Taubenhaus and T. F. Manns. (Delaware Station Bulletin 109, pp. 3-55, pls. 23.)

Campaign to Eliminate Bacillary White Diarrhea. (Massachusetts Station Circular 56, p. 1.)

Water Hemlock (Cicuta). By C. A. Jacobson. (Nevada Station Bulletin 81, pp. 5-46, figs. 10.)

The Control of Contagious Epithelioma in Chickens by Vaccination. By W. B. Mark and E. Records. (Nevada Station Bulletin 82, pp. 5-16.)

Ascochyta blight, the Cause of Stem-rot and Leaf-spot of Clematis. By W. J. Glover. (New York State Station Technical Bulletin 44, pp. 3-14, pls. 5.)

INSPECTION AND METEOROLOGY.

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